

Clinico-epidemiological Profiling of Dengue Patients in a Non-endemic Region of Bangladesh

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Introduction

- Dengue, a mosquito-borne viral disease, continues to pose a significant threat and public health challenge globally, including in Bangladesh
- The prevalence of global Dengue virus (DENV) infections has rapidly surged over the past two decades with Asia contributing over two-thirds of the global burden

Introduction cont'd...

- While the dengue virus predominantly impacts the urban population, sporadic cases have been observed in areas beyond urban settings, extending into non-endemic regions in the last few years
- The objective of this study was to outline the clinico-epidemiological profile along with outcome of dengue patients in a non-endemic region of Bangladesh

- In Bangladesh, sporadic dengue outbreaks were noted since 1964, with a significant epidemic occurring in 2000
- However, in 2019, Bangladesh faced its first largest dengue epidemic, reporting 101,354 cases and 164 dengue-related deaths, interestingly this outbreak affected regions previously considered free of the disease
- From 1 January to 7 August 2023, the Ministry of Health and Family Welfare of Bangladesh reported a total of 69 483 laboratory-confirmed dengue cases and 327 related deaths, with a case fatality rate (CFR) of 0.47%. Of these, 63% of cases and 62% of the deaths were reported in the month of July 2023

Rationale

- Identifying patients at risk of developing severe disease is crucial for intensive monitoring, requiring a comprehensive evaluation of clinical and primary laboratory parameters
- This study aimed to fill the knowledge gap in the Bangladeshi context, providing insights into the clinical, haematological, biochemical profiles and treatment outcome of dengue patients admitted to Mymensingh Medical College Hospital

Study design and subjects

- Prospective observational study
- Data was collected from August to December, 2023
- All the adolescents, young adults, adults and elderly patients of both sexes admitted in MMCH with documented dengue fever confirmed by NS1 antigen or positive antibody test were included in the study
- A total of 805 dengue patients were included in the study

Statistical analysis

- Statistical analyses were performed by using IBM SPSS Statistics 25
- Descriptive statistics were used to summarize the data
- Necessary statistical testing were performed as appropriate

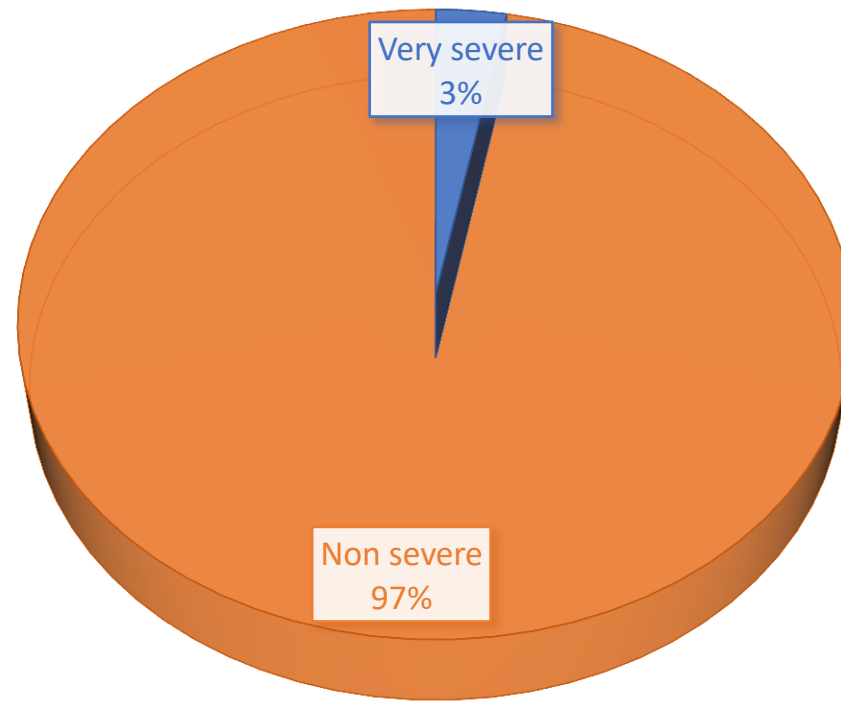
Statistical analysis cont'd...

- For the purpose of comparative analysis, Dengue cases were classified into two categories: 'Non-severe cases,' consisting of Group-A and Group-B patients, and 'Severe cases,' comprising Group-C patients

Result

- Among total of 805 respondents 81% were male
- Patient's mean (SD) age was 31.5 (12.2) years, most of them being adolescents and young adults (80.5%)
- Majority patients was residing in urban and sub-urban areas (59.4%)
- Serologically confirmed dengue viral infection 781 (97%) had non-severe dengue including dengue without warning signs, Group-A and Group-B patients and 3% (n=24) had severe dengue

Severity stratification of patients (n=805)



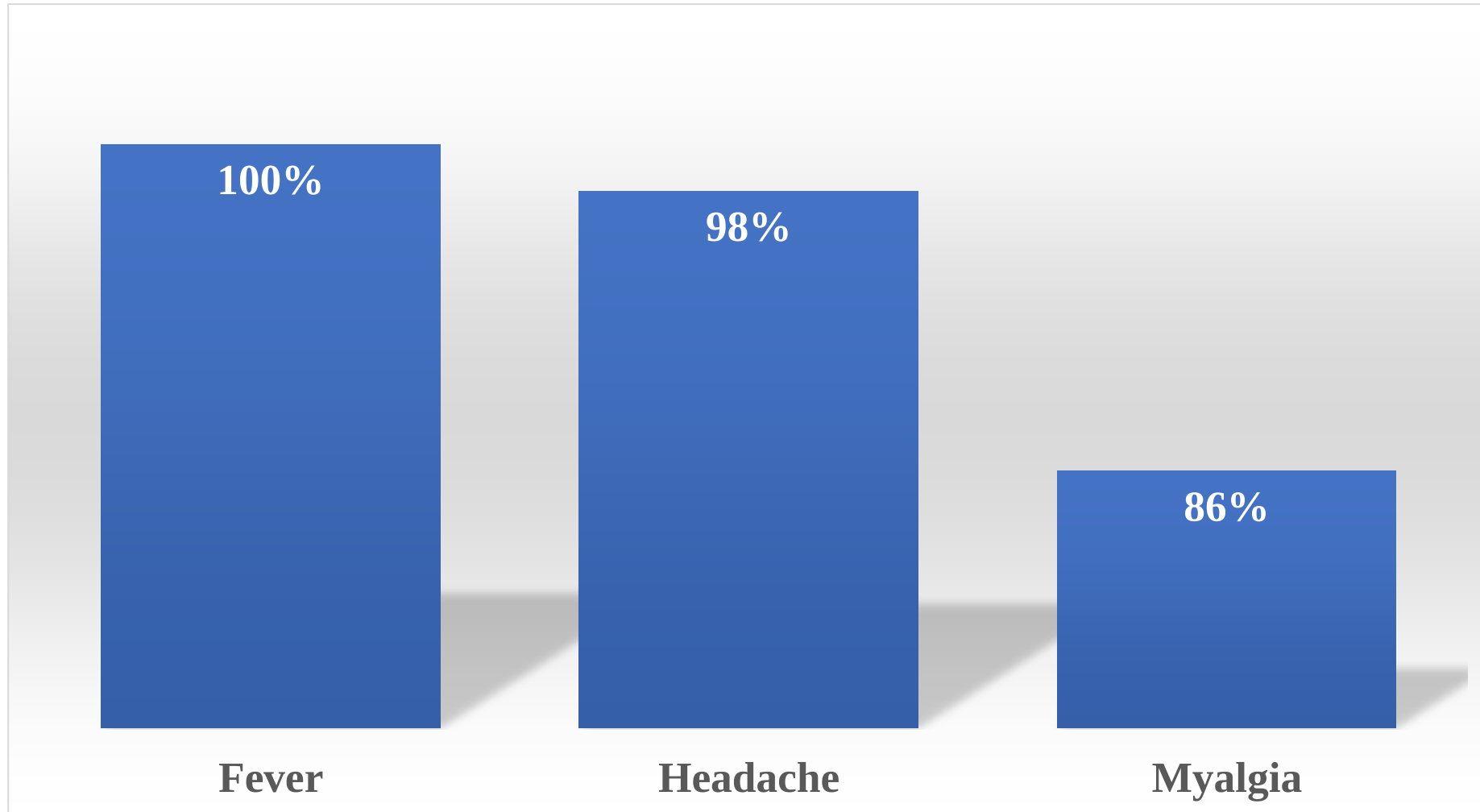
Result cont'd...

- A total of 736 (91.4%) patients were confirmed by positive dengue NS1 antigen and 69 (8.6%) patients were confirmed by positive dengue specific IgM antibody tests.
- It was found that 365 (45.3%) had history of travelling to endemic zone within 7 days before the onset of disease.

Result cont'd...

- The most common clinical feature on presentation was fever (100%) followed by headache (98.3%) and myalgia (86.7%)
- Persistent vomiting was the most common warning sign (74.6%) followed by abdominal pain (74.3%)
- 23.7% (n=191) and 25.9% (n=209) of the patients had bleeding manifestation and neurological manifestations respectively

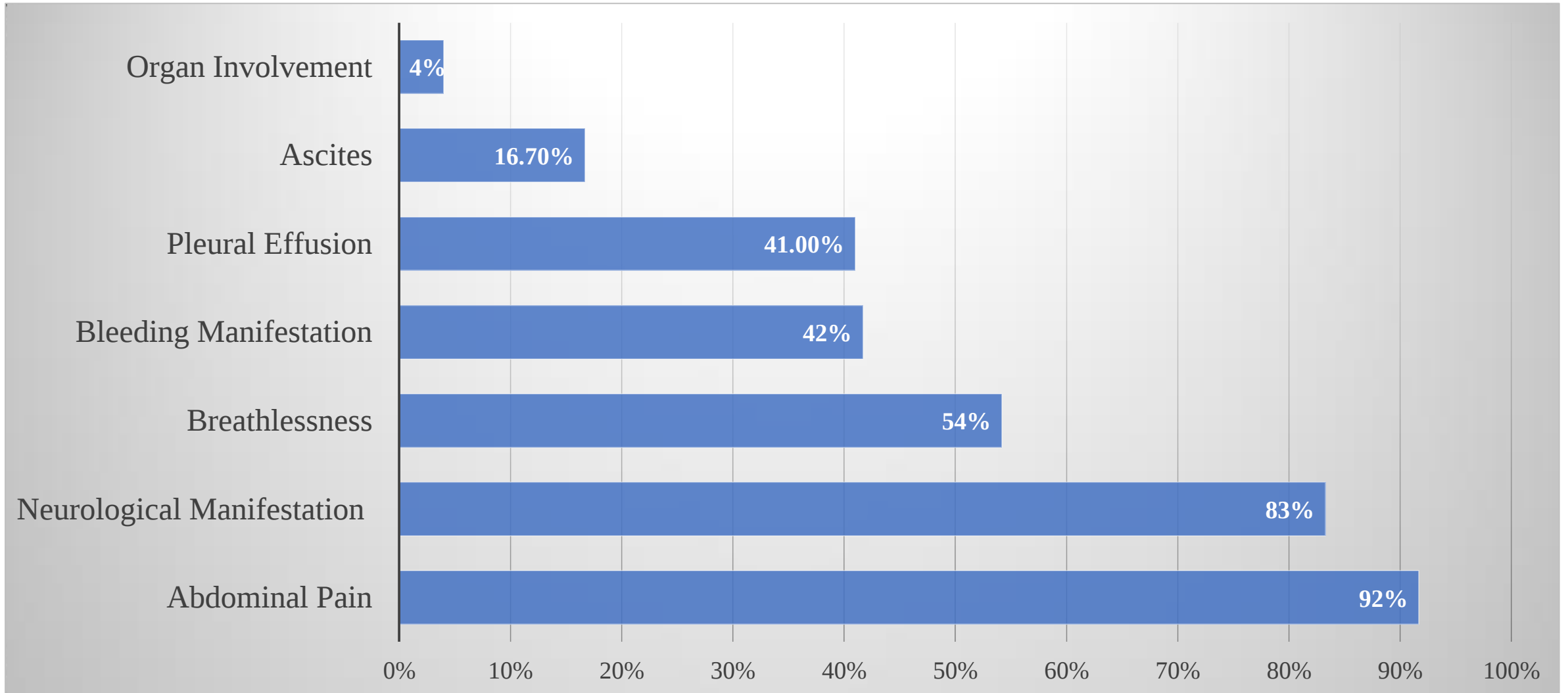
Common manifestations of patients (n=805)



Result cont'd...

- Among the patients with severe dengue, 22 (91.7%), 20 (83.3%), 13 (54.2%) and 10 (41.7%) had abdominal pain, neurological manifestations, breathlessness and bleeding manifestations respectively
- Pleural effusion and ascites and organ involvement was documented in 41.7% (n=10), 16.7%(n=4) and 4.2%(n=1) of severe dengue cases

Presentations of patients with severe dengue (n=805)



Result cont'd...

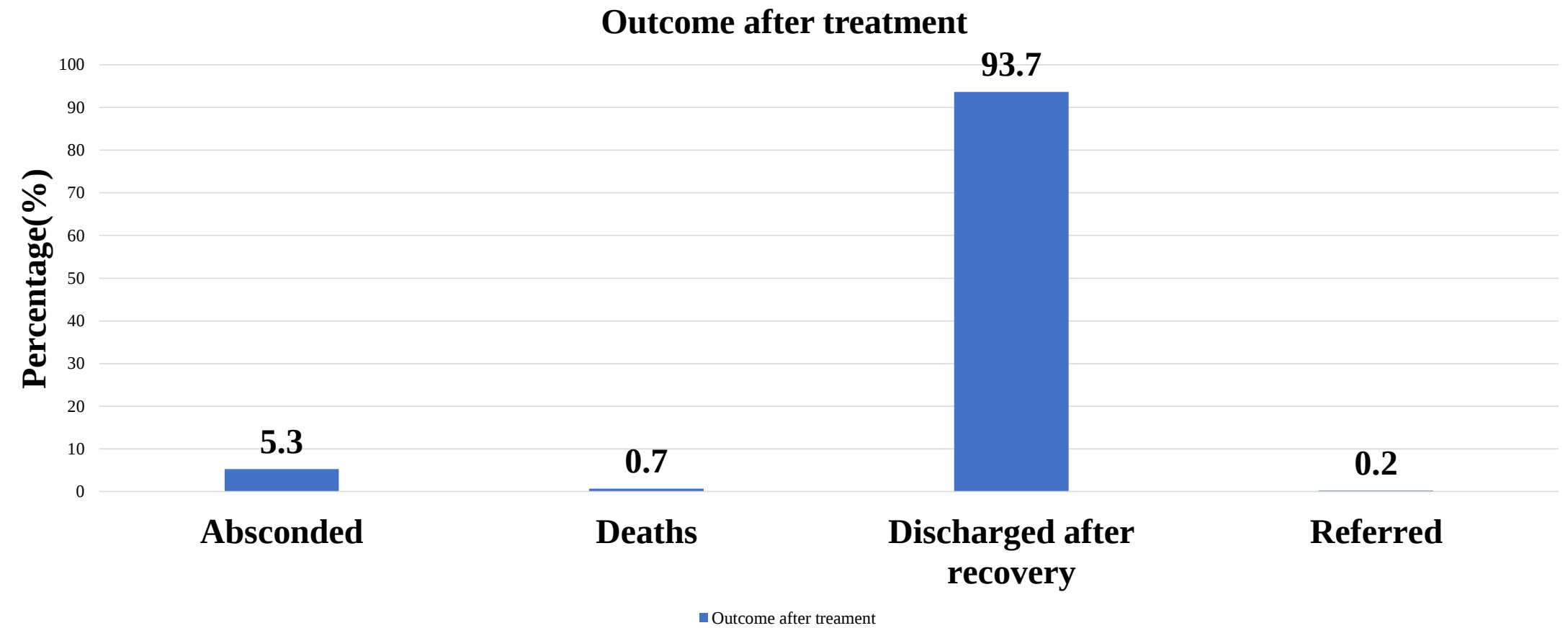
Haematological and biochemical parameters of dengue cases

- Among the 805 patients, Hyponatremia and hypokalaemia was observed in 55(6.8%) and 23(2.9%) of the patient respectively
- Hypoalbuminemia was seen in 5 (0.6%) dengue patients and raised creatinine(>1.5mg/dl) was reported in 15 (1.9%)

Result cont'd...

- Raised SGPT (<200 and >200IU/L) was seen in 171 (21.2%) of the dengue cases
- The mean (SD) Hematocrit was 40.7% (16.3), Platelet count was 107cells/ μ L (71.1) and WBC count was 5950.7 cells/ μ L (3203)

Figure 1: Treatment outcomes of dengue cases (n=805)



Conclusion

- This study highlights that the most frequent complaints among dengue patients were fever, headache, and myalgia, while vomiting and abdominal pain stood out as the predominant warning signs
- Notably, severe dengue was predominantly linked to plasma leakage rather than haemorrhage

Recommendation

- To control dengue outbreaks in Bangladesh, it is vital to implement a comprehensive strategy that incorporates vaccination for prevention, along with raising public awareness and government strategies to mitigate prevention

Thank You